

Quadrant EPP Duratron® PEI U1000 PEI, unfilled, extruded (ISO Data)


Categories: [Polymer](#); [Thermoplastic](#); [Polyetherimide \(PEI\)](#); [Polyetherimide \(PEI\), Extrusion Grade](#)

Material Notes: Duratron U1000 PEI is an amber translucent (non-optical quality) amorphous thermoplastic material, offering high strength and heat resistance. It performs continuously to 170 °C, making it ideal for high strength / high heat applications, and also for applications requiring consistent dielectric properties over a wide frequency and temperature range.

- High maximum allowable service temperature in air (170°C continuously)
- Very good hydrolysis resistance (suitable for repeated steam sterilization)
- High strength and stiffness over a wide temperature range
- Inherent low flammability and low levels of smoke evolution during combustion
- Good dimensional stability
- Physiologically inert (suitable for food contact)
- Very good resistance against high energy radiation (gamma- and X-rays)
- Very good electrical insulating and dielectric properties

Vendors: [Click here to view all available suppliers for this material.](#)

Please [click here](#) if you are a supplier and would like information on how to add your listing to this material.

Physical Properties	Metric	English	Comments
Density	1.27 g/cc	0.0459 lb/in ³	ISO 1183-1
Moisture Absorption at Equilibrium	0.70 %	0.70 %	50% RH
Water Absorption at Saturation	1.3 %	1.3 %	
Outgassing - Total Mass Loss	0.82 %	0.82 %	
Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	115	115	ISO 2039-2
Hardness, Shore D	85	85	
Ball Indentation Hardness	165 MPa	23900 psi	ISO 2039-1
Tensile Strength	129 MPa	18700 psi	at Yield; ISO 527-1/-2
Elongation at Break	13 %	13 %	ISO 527-1/-2
Elongation at Yield	7.0 %	7.0 %	ISO 527-1/-2
Tensile Modulus	3.50 GPa	508 ksi	ISO 527-1/-2
Flexural Strength	167 MPa	24200 psi	
Compressive Strength 	31.0 MPa @Strain 1 %	4500 psi @Strain 1 %	ISO 604
	61.0 MPa @Strain 2 %	8850 psi @Strain 2 %	ISO 604
	137 MPa @Strain 5 %	19900 psi @Strain 5 %	ISO 604
K Factor (ISO)	1325 µm/km	1325 µm/km	
Charpy Impact Unnotched	NB	NB	ISO 179-1/1eU
Charpy Impact, Notched	0.350 J/cm ²	1.67 ft-lb/in ²	ISO 179-1/1eA
Coefficient of Friction, Dynamic	0.30 - 0.40	0.30 - 0.40	
Electrical Properties	Metric	English	Comments
Volume Resistivity	>= 1.0e+14 ohm-cm	>= 1.0e+14 ohm-cm	IEC 60093
Surface Resistivity per Square	>= 1.0e+13 ohm	>= 1.0e+13 ohm	IEC 60093
Dielectric Constant	3.0 @Frequency >=100000 Hz	3.0 @Frequency >=100000 Hz	IEC 60250
Dielectric Strength	27.0 kV/mm	686 kV/in	
Dissipation Factor	0.0020 @Frequency 100000 Hz	0.0020 @Frequency 100000 Hz	IEC 60250
Comparative Tracking Index	175 V	175 V	IEC 60112
Thermal Properties	Metric	English	Comments
CTE, linear	50.0 µm/m-°C @Temperature 23.0 - 100 °C	27.8 µin/in-°F @Temperature 73.4 - 212 °F	
Thermal Conductivity	0.240 W/m-K	1.67 BTU-in/hr-ft ² -°F	
Maximum Service Temperature, Air	170 °C	338 °F	Continuous
Deflection Temperature at 1.8 MPa (264 psi)	195 °C	383 °F	ISO 75-1/-2
Glass Transition Temp, Tg	215 °C	419 °F	DSC, 20°C/min.; ISO 11357-1/-2
Flammability, UL94	V-0	V-0	
Oxygen Index	47 %	47 %	ISO 4589-1/-2
Compliance Properties	Metric	English	Comments
3A-Dairy	Yes	Yes	Only natural
European Food 1935/2004	No	No	

FDA	Yes	Yes	only natural
USP Class VI	No	No	

Chemical Resistance Properties	Metric	English	Comments
Acids, Strong (pH 1-3)	Unacceptable	Unacceptable	
Acids, Weak	Acceptable	Acceptable	
Alcohols	Acceptable	Acceptable	
Alkalies, Strong (pH 11-14)	Unacceptable	Unacceptable	
Alkalies, Weak	Acceptable	Acceptable	
Chlorinated Solvents	Unacceptable	Unacceptable	
Continuous Sunlight	Acceptable	Acceptable	
Hot Water / Steam	Acceptable	Acceptable	
Hydrocarbons - Aliphatic	Limited	Limited	
Hydrocarbons - Aromatic	Unacceptable	Unacceptable	
Inorganic Salt Solutions	Acceptable	Acceptable	
Ketones, Esters	Unacceptable	Unacceptable	

Some of the values displayed above may have been converted from their original units and/or rounded in order to display the information in a consistent format. Users requiring more precise data for scientific or engineering calculations can click on the property value to see the original value as well as raw conversions to equivalent units. We advise that you only use the original value or one of its raw conversions in your calculations to minimize rounding error. We also ask that you refer to MatWeb's [terms of use](#) regarding this information. [Click here](#) to view all the property values for this datasheet as they were originally entered into MatWeb.